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## E-Service Quality Dimensions and Their Effects on E- Customer Satisfaction in Internet Banking Services

Farnaz Beheshti Zavareh<sup>a</sup>, Mohd Shoki Md Ariff<sup>a\*</sup>, Ahmad Jusoh<sup>a</sup>, Norhayati  
Zakuan<sup>a</sup>, and Ahamad Zaidi Bahari<sup>a</sup>

<sup>a</sup>Faculty of Management and Human Resource Development, Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor, Malaysia

Mohsen Ashourian<sup>b</sup>

<sup>b</sup>Islamic Azad University, Majlesi, Isfahan, Iran

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### Abstract

This study assessed the use of E-SERVQUAL scale to construct e-Service Quality (e-SQ) for internet banking services. In addition, it attempted to examine the effect of e-SQ on e-Customer Satisfaction (e-CS). Construct of e-SQ for internet banking services was developed to determine dimensions of e-SQ based on the E-SERVQUAL instrument, dimensions used to measure e-SQ in internet banking in USA, Hong Kong, Taiwan, Sweden and UK, and the expert opinions. The primary data of e-SQ and e-CS were gathered from 392 internet banking users, representing 76% response rates, of four main public banks in Iran. The finding indicated that efficient and reliable services, fulfilment, security/trust, site aesthetics, responsiveness/contact, and ease of use constitute e-SQ for internet banking services in Iran; indicating that dimensions and items of E-SERVQUAL need to be reorganized and reinterpreted when it is used to measure e-SQ for internet banking. A significant positive relationship exists between e-SQ and e-CS in the internet banking. The regression analysis performed showed that security/trust, site aesthetics, and ease of use of the internet banking services have positive effects on e-CS.

*Keywords:* Internet banking; e-service quality; E-SERVQUAL; e-Customer Satisfaction; Banking

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### 1. Introduction

With rapid growth and extensive use of the Internet in the marketing practices of firms, service quality delivery through electronic platforms for electronic commerce becomes one of the most critical issues for marketers in the service sector [1]. Electronic service quality (e-SQ) is becoming increasingly important in determining the success or failure of electronic commerce application. There is still a lack of comprehensive e-SQ scales in the academia, and the majority of existing scales focuses on a limited set of variables [2]. Use of e-SQ instruments such as E-SERVQUAL [3], WebQual [4] and eTailQ [5] require

researchers to review variables proposed in the instruments in term of their content and construct validities in different context of services. In internet banking, the subjects of these studies have been customers in Sweden, Taiwan, Hong Kong, UK and USA. However, given that the theories of e-SQ are based on consumer perceptions, do these perceptions translate well to other countries like Iran? And would it be possible to use E-SERVQUAL dimensions in Iranian Internet banking?

There is an ongoing discussion in the literature about the relation and underlying difference between customer quality perceptions and satisfaction in internet based services. Several studies found that specific website e-services can positively affect customer satisfaction with website and online purchasing in the long run [6]. A question is that does e-SQ of Iranian Internet banking will positively affect its e-CS?

## 2. Literature Review

Review on the assessment of instruments developed to measure e-SQ, such as E-SERVQUAL, WebQual and eTailQ addressed the need to validate the instruments and to redefine or reorganize the variables and dimensions used, especially in different service context and countries. Crossing national boundaries exposes theories, concepts and instruments to a host of institutional and environmental differences that affect the ability to generalize theories developed in some countries, and challenge the relationships that are commonly accepted as “given” within a country [7]. Theories and instruments, like E-SERVQUAL for measuring e-SQ, must undergo further validation through research in different contexts and cultures before they are accepted as universal [8]. For examples, web-site setting, access, web site Interface, trust, attention and credibility were dimensions of e-SQ in UK [9]; credibility, efficiency, problem handling, security in Hong Kong [10]; credibility, efficiency, fulfilment, security, site aesthetics, system availability in Sweden [11]; and efficiency, fulfilment, system availability, privacy, contact, compensation, site aesthetics, customization in Taiwan [12]. Similarities and differences observed in the e-SQ dimensions of these countries as well as with what being addressed in the e-SERVQUAL.

Customer satisfaction is likely to be even more important online, since it is harder to keep online customers loyal [15]. In banking, which has traditionally been a high contact service, the lack of direct human interaction in internet banking entails the need to examine the role of technology, shopping, and product factors to construct e-CS [13]. Banks must have the knowledge on how to get their customer satisfied, especially in relation to the e-SQ, and in internet banking, it shall be prioritized [14].

## 3. Validity and Reliability

The e-SQ dimensions of this study was adapted and modified based on E-SERVQUAL developed by Parasuraman et al. [3] that can be classified into two scales; E-S-QUAL or core scale, and E-RecS-QUAL or recovery scale. The four dimensions of E-S-QUAL used were efficiency, fulfilment, system availability and privacy and security with 22 items. For RecS-QUAL, two dimensions used were responsiveness and contact with eight items. Measurement on the compensation dimension of RecS-QUAL requires the customers’ experiences of problems with the given service and complaining about that. As it implies difficulty in evaluating this dimension because of the lack of enough people encountering problems, the compensation dimension of the E-S-QUAL scale has been dropped from this study. Based on the review on e-SQ dimensions for internet banking, the authors added three new dimensions – assurance, site aesthetics and customization - to cover all potential demands of the Iranian Internet banking customers. The authors used experts’ opinion to filter the selected nine dimensions and defined all items for them to match existing services in Iranian Internet banking. The outcome of this exercise was the final eight dimensions and 21 items to determine e-SQ for Iranian internet banking. Dimension of customization was dropped because at the time of doing this research, the site

customization was not provided in any of the Internet services of the four Iranian public banks, namely - Melli, Saderat, Tejarat and Mellat in Isfahan, Iran.

Confirmatory Factor analysis (CFA) was conducted related to a principal component with varimax rotation in order to validate the underlying structure of e-SQ of Iranian internet banking services as the independent variable and e-CS as the dependent variable. The overall constructs constitute of e-SQ and e-CS converted well. The KMO measurement of sampling adequacy value was 0.718, which was greater than 0.6, indicating that the proportion of variance in the variables was caused by underlying factors, allowing the current data to proceed with factor analysis. In addition, the Bartlett's test of Sphericity value of 0.000 that was less than 0.05, proving that the analysis was significant. The constructs of e-SQ was extracted using loading factor of 0.5. Therefore, two items (e-SQ 1 - accessibility and e-SQ 19 - good reputation) were neglected due to all the factors loadings under such items were less than 0.5.

The construct of e-CS was based on the work of Schaupp and Bélanger [13] which include technology, shopping, and product factors. The KMO measure of sampling was 0.70, supported by Bartlett's test of Sphericity of 0.00, allowing the research to proceed with factor analysis. The results of Total Variance Explained indicated that only one dimension in the initial solution with eigenvalues greater than 1.0 has been extracted with the cumulative percentage of 60.238%. All items were accepted based on the results on component matrix with factor loading more than 0.5. Only one component was extracted, the solution cannot be rotated and it was labelled as e-CS.

The reliability was evaluated by assessing the internal consistency of the items representing each construct of e-SQ using Cronbach's alpha. The reliability of each construct of e-SQ was more than 0.7 as follows: efficient and reliable services = .810; = fulfilment 0.742; security/trust = 0.735; Site Aesthetics = .721; responsiveness/contact = .707 and ease of use = .767; overall e-SQ > .720. For e-CS, Cronbach's alpha was 0.702. Thus, the e-SQ and e-CS data in this research were reliable and valid for further analyses.

#### 4. Result and Analysis

The results of the CFA, as presented in Table 1, indicated that there were six dimensions with 19 items constitute the e-SQ for the Iranian internet banking services. Some items were identical with what being addressed in the E-SERVQUAL instrument whilst some of them were renaming and the implication was highlighted.

The Pearson's correlation of coefficient analysis performed revealed that a significant positive moderate relationship exists between efficient and reliable internet banking services (0.453,  $p < .05$ ) with e-CS. The other five dimensions have nearly similar correlation between 0.202 to 0.245 ( $p < .05$ ) indicated low positive correlation between the e-SQ and e-CS

The result of the multiple regression analysis indicated that all VIF values for the six independent variables were less than 10 which indicated the threat of multicollinearity problem is insignificant in this research. The value of correlation coefficient  $R = 0.348$ , indicating the impact of e-SQ of the internet banking services on e-CS can be considered as low. The results indicated that three dimensions statistically significant which were Security/Trust (B 0.169, std 0.063,  $\beta$  0.156,  $t$  2.712, Sig. 0.007), Site Aesthetics (B 0.145, std 0.052,  $\beta$  0.158,  $t$  2.775, Sig. 0.007, Sig. 0.006), and Ease of Use (B 0.140, std 0.064,  $\beta$  0.129,  $t$  2.199, Sig. 0.029), and only these dimensions can be included in the regression equation.

Table 1: Dimensions and items of e-SQ for the Iranian internet banking services

Items	Implication	Dimens ion of e-SQ
e-SQ8: Browser Efficiency e-SQ10: Web Site Availability e-SQ6: Website Interactivity e-SQ17: Website Proper Work	The service delivered through the Internet banking pages is quick The Internet banking part of website is always available for business When the Internet banking section promises to do something by a certain time, it does so Complete quickly a transaction through the bank's website	Efficient and reliable services
e-SQ5: User-friendly interface e-SQ9: Website Accuracy e-SQ11: On Time Reaction e-SQ7: Banking Accuracy	Organization and structure of Internet banking pages easy to follow Accurate promises about the services being delivered The Internet banking part of website launches and runs right away Internet banking transactions are always accurate	Fulfilment
e-SQ12: Customer authentication e-SQ13: Safety/Security e-SQ18: Confidence	No misuse of customers personal Information Feel safe in internet banking transactions Confidence in the internet banking service	Security /trust
e-SQ20: Website Attractively e-SQ21: Website appearance	The Internet banking webpage is attractive The Internet banking webpage is visually pleasing.	Site aesthetic
e-SQ14: Direct and Fast Contact e-SQ15: Quick Help e-SQ16: Direct Link	Prompt response to customer request Quickly resolves online transaction problems The Internet banking customer services are easily accessible by telephone/other means.	Responsiveness/contact
e-SQ2: Website Info e-SQ3: Website map e-SQ4: Convenient Transaction	Easily find what customers need on the website Graphic representation of banks' websites help customers to use internet banking services Able to use the Internet banking utilities of website without a lot of effort	Ease of use

## 5. Discussions

Result of the CFA, indicated that six dimensions - efficient and reliable services, fulfilment, security/trust, site aesthetics, responsiveness/contact, and ease of use - constituted e-SQ for the Iranian internet banking. The cumulative variability explained by these six dimensions in the extracted solution was 70.804%. Thus, dimensions proposed in E-SERVQUAL can be used to measure e-SQ for internet banking services provided all those dimensions and their items should be re-organized and reinterpreted as depicted in Table 1.

The results of correlation analyses proved that there was positive correlation between e-SQ and e-CS for Iranian Internet banking customers. The R-square value of the multiple regression results shows that 12.1 percent of the variation in e-CS can be explained by the variation in the independent variables of efficient and reliable services, fulfilment, security/trust, site aesthetics, responsiveness/contact, and ease of use. Future researches should consider dimensions of customization and compensation, which were dropped in this study, as they may have greater impact on e-CS. There were only three dimensions statistically significant which were Security/Trust, Site Aesthetics, and Ease of Use. So, the linear regression equation for this research was  $Y_{e-CS} = 0.169X_1 + 0.145X_2 + 0.140X_3 + 2.197$ .

## 6. Conclusions

This research had validated that construct of E-SERVQUAL, with some modification, can be used to measure e-SQ for internet banking services. Adjustments of dimensions and items of E-SERVQUAL were required to ensure validity of the instrument in the internet banking environment. In addition, dimensions, such as site aesthetic and customization should be considered when determining e-

SQ for internet banking services. Dimensions identified for e-SQ in Iranian internet banking were identical with what being observed in USA, Hong Kong, Taiwan, Sweden and UK.

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